TOP SECRET

PRIORITY

OUT58134

TOPSECRET 020010Z multi 1966 APR 2 00 59Z

25X1

[redacted]

SUBJ: MISSION 1030 PHOTOGRAPHIC EVALUATION INTERIM REPORT (PEIR)

1. NUMERICAL SUMMARY

MSN NO AND DATES:	1030-1, 9-14 MARCH 1966
	1030-2, 14-19 MARCH 1966
LAUNCH DATE AND TIME:	9 MARCH 1966/2202Z
VEHICLE NUMBER:	1622
CAMERA SYSTEM:	J-29
PAN CAMERA NOS:	FWD LOOKING (MASTER) 182
	AFT LOOKING (SLAVE) 183
S/I CAMERA NOS:	MSN 1030-1: D94/100/107
	MSN 1030-2: D82/195/102
RECOVERY REVS:	D81 AND D159

4 APR 1966

7

1

345

PAG
DIAXX-4
SPAD
NSA-LO
DIA-AP

2. CAMERA SETTINGS

FWD LOOKING	0.275 INCH SLIT, WRATTEN 25 FILTER
AFT LOOKING	0.175 INCH SLIT, WRATTEN 21 FILTER

3. PERFORMANCE SUMMARY

A SMALL PORTION OF THE PAN PHOTOGRAPHY FROM THIS MISSION IS

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CONSIDERED TO BE AS GOOD AS ANY OBSERVED IN RECENT MISSIONS. HOWEVER, MOST OF THE MATERIAL WAS OF DISTINCTLY POORER QUALITY THAN ANY RECENT CORONA MISSION. THE REDUCTION IN OVERALL QUALITY IS ATTRIBUTED TO SEVERE ATMOSPHERIC CONDITIONS AND HIGH ORIGINAL NEGATIVE DENSITY. THESE CONDITIONS ARE DISCUSSED FURTHER IN PARA 5, COMMENTS.

ONLY ONE RESOLUTION TARGET DISPLAY WAS IMAGED. THIS HIGH CONTRAST TARGET, COVERED UNDER POOR WEATHER CONDITIONS, INDICATED ALONG TRACK (IMC) AND CROSS TRACK (SCAN) RESOLUTION VALUES OF ABOUT [redacted] FOR BOTH CAMERAS. THE QUALITY OF MATERIAL FROM THE TWO PAN CAMERAS APPEARED ON THE AVERAGE TO BE COMPARABLE. 25X1

4. ANOMALIES

ANOMALIES INCLUDING THOSE REPORTED IN THE REBIND 42 MESSAGES (REF A, B, AND C) WERE REVIEWED.

A. POOR IMAGERY FROM STARBOARD HORIZON CAMERAS

CAUSE: THE STARBOARD H. O.'S PRODUCED POOR BUT USABLE IMAGERY VERY EARLY IN THE MISSION. AS THE FLIGHT PROGRESSED THE STARBOARD H.O.'S CONTINUED TO DEGRADE TO A USELESS CONDITION. THEY BEGAN TO CLEAR ON PASS D98, AND AFTER D132 APPEARANCE WAS NORMAL. IT IS NOTED THAT ON MISSIONS WHERE THE VEHICLE WAS NOT YAWED AROUND, NO DEGRADING EFFECTS WERE OBSERVED ON THE H.O.'S OR STELLAR CAMERA MATERIAL.

ACTION: NONE INDICATED ON THE BASIS OF PRESENT DATA.

B. MISSING END-OF-PASS MARK ON MASTER INSTRUMENT.

CAUSE: REVIEW OF THE PRE-FLIGHT MATERIAL INDICATED THAT

THE EOP MARK WAS PRESENT PRIOR TO LIFT OFF. THE MARKER LAMP WAS LOST DURING ASSENT, PROBABLY DUE TO VIBRATION SINCE IT WAS NOT PRESENT ON ANY FLIGHT PHOTOGRAPHY.

ACTION: NONE INDICATED.

C. AN EMULSION SCRATCH REPEATING AT 6 1/4 INCH INTERVALS WAS EVIDENT THROUGHOUT THE INDEX RECORD OF 1030-1. THE SCRATCH WAS LOCATED 5/8" FROM THE CAMERA NUMBER EDGE.

CAUSE: THIS IS A PROCESSOR DEFECT AND THE CAUSE OF THE PROBLEM HAS BEEN CORRECTED.

ACTION: NO FURTHER ACTION REQUIRED.

D. RAKE LINES IN THE LATTER PART OF 1030-1 AFT CAMERA MATERIAL.

CAUSE: THIS DEFECT COULD ORIGINATE IN MANUFACTURE, OPERATION, OR PROCESSING.

ACTION: UNDER INVESTIGATION. [redacted] 25X1

E. CHARACTERISTIC ANOMALIES

THERE ARE CERTAIN CHARACTERISTIC ANOMALIES THAT ARE CONSIDERED INHERENT TO THE OPERATION OF THE CORONA SYSTEM. WHILE THESE ITEMS WARRANT ATTENTION TO PREVENT FURTHER DEGRADATION, IT IS NOT FELT THAT SPECIFIC ACTION ITEMS SHOULD BE ASSIGNED. A SUMMARY OF THESE ITEMS AND THE DEGREE OF DEGRADATION IS PRESENTED BELOW.

(1) SCRATCHES IN THE FORMATS OF BOTH PAN CAMERAS WERE NORMAL.

(2) RAIL SCRATCHES FROM BOTH PAN CAMERAS WERE NORMAL.

(3) RAGGED FORMAT EDGES FROM SCRAPED EMULSION WERE

GREATER THAN NORMAL.

(4) STATIC DISCHARGE ALONG THE EDGES OF BOTH PAN CAMERA FILMS WAS LESS THAN NORMAL.

(5) LIGHT LEAKS AFFECTING BOTH PAN CAMERA FILMS WERE LESS THAN USUAL.

(6) PLUS DENSITY ELECTROSTATIC STREAKS ON BOTH STELLAR FILMS WERE NORMAL.

(7) MULTI-DIRECTIONAL, PLUS DENSITY STREAKS APPEARED INTERMITTENTLY THROUGH FRAME 78 OF THE 1030-1 STELLAR MATERIAL. THIS CONDITION IS NORMAL.

5. COMMENTS

A. BOTH THE PET AND THE PI'S FEEL THAT THIS MISSION WAS BADLY AFFECTED BY ATMOSPHERICS. IN MANY TARGET AREAS THERE WAS A SEVERE HAZE LAYER THAT DRASTICALLY REDUCED CONTRAST AND IMAGE QUALITY. AN ANALYSIS OF THE INDEX MATERIAL BEARS THIS OUT. IN THIS ANALYSIS THE NUMBER OF CLEAR FRAMES WERE NOTED. THOSE WITH A HIGH PERCENTAGE OF CLOUDS OR OBVIOUS HAZE WERE NOT FURTHER ANALYZED. THOSE THAT WERE CLEAR WERE BROKEN DOWN INTO SNOW AND ICE, AND TERRAIN CATEGORIES. THE DATA PRESENTED BELOW CLEARLY ILLUSTRATES THE LOW PERCENTAGE OF CLEAR INDEX FRAMES OBSERVED, AND THE EVEN LOWER PERCENTAGE OF CLEAR TERRAIN FRAMES OBSERVED.

1030-1 (TOTAL INDEX FRAMES - 422)

TOTAL CLEAR FRAMES (10 PERCENT OR LESS CLOUD COVER)	65 OR 15 PERCENT
CLEAR (WITH SNOW AND ICE)	58 OR 13 PERCENT

CLEAR TERRAIN	7 OR 2 PERCENT
1030-2 (TOTAL INDEX FRAMES - 444)	
TOTAL CLEAR FRAMES (10 PERCENT OR LESS CLOUD COVER)	75 OR 17 PERCENT
CLEAR WITH SNOW AND ICE	23 OR 6 PERCENT
CLEAR TERRAIN	52 OR 11 PERCENT

FROM THIS ANALYSIS IT IS OBVIOUS THAT A VERY SMALL PERCENTAGE OF THE TARGETS WERE IN CLEAR AREAS.

B. ON MISSION 1030, THE MEASURED D-MIN VALUES WERE HIGHER THAN ON PREVIOUS CORONA MISSIONS, EVEN WITH A LOWER PERCENTAGE OF FULL PROCESSING. THE TEAM IS CONCERNED, BUT UNCERTAIN, AS TO THE SIGNIFICANCE OF THIS FACT. IT IS NOT EASY TO DEFINE WHAT IS AN OPTIMUM EXPOSURE, BECAUSE OF THE LACK OF CORRELATION BETWEEN MEASURED DENSITY VALUES AND MISSION PERFORMANCE. THE CORRELATION BETWEEN MEASURED DENSITY VALUES AND MISSION PERFORMANCE IS NOT A STRAIGHT FORWARD MATTER. VARIABLES SUCH AS ATMOSPHERICS, SLIT WIDTH, SOLAR ALTITUDE, LAUNCH TIME, ETC., CAN AFFECT BOTH DENSITY AND PERFORMANCE IN DIFFERENT WAYS. THE PET FEELS THAT UNTIL FURTHER RESEARCH REVEALS MORE SPECIFIC INFORMATION RELATING TO OPTIMUM EXPOSURE LEVELS, THIS QUESTION WILL REMAIN ESSENTIALLY UNANSWERABLE.

C. BECAUSE OF THE LACK OF CORRELATION BETWEEN MTF RESOLUTION DATA AND MISSION PERFORMANCE, THE TEAM RECOMMENDS THAT [redacted] UNDERTAKE A STUDY TO EVALUATE THE CORRELATION BETWEEN MTF RESOLUTION VALUES AND THE FACTORS RELATING TO THESE MEASUREMENTS. 25X1

D. THE PET RECOMMENDS THAT PROJECT MANAGEMENT CONSIDER THE USE OF A WRATTEN 23 FILTER IN PLACE OF THE WRATTEN 25 ON THE FWD LOOKING CAMERA. SUFFICENT QUANTITY OF FILTER MATERIAL AND FILTER FACTOR INFORMATION HAVE BEEN SUPPLIED TO AP.

T O P S E C R E T

--END OF MESSAGE--